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TO : THE DEPARTMENT OF STATE, WASHINGTON.

May 9, 1961

REF : Embtel 606

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SUBJECT: Israel Atomic Energy Program

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The referenced telegram mentioned a report by Jens Christian HAUGE on his impressions of the Israel atomic energy program, which both Hauge and the Foreign Ministry had promised to make available to the Embassy. An informal Embassy translation of this report is enclosed. As received, it was without classification of any sort; the Embassy considers a classification of Limited Official Use warranted for control purposes.

For the Ambassador:

*Scott George*  
Scott George  
First Secretary of Embassy

Enclosure:

Translation

STATE DEPT. DECLASSIFICATION REVIEW

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NAD 42247  
by STATE 2 3-19-15

SPECIAL ASSISTANT  
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7/5/6 121-1218-415

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Authority NAB 949569~~LIMITED OFFICIAL USE~~Page 1  
Encl. 1  
Desp. 602  
From OSLO

## NOTE FROM

SUPREME COURT ATTORNEY JENS CHRISTIAN HAUGE

Israel's Atomic Energy Program

During a two-week visit to Israel early in April I had the opportunity to study Israel's atomic energy program, primarily through talks with the chairman of the Israeli Atomic Energy Commission, Professor E. D. BERGMANN, who was my host. I also had discussions about Israel's atomic energy work with various other government officials and people from the Atomic Energy Commission. My impressions may be summed up as follows:

1. The Prime Minister of Israel has declared that Israel's work on atomic energy shall serve peaceful purposes exclusively. Development of atomic power is an important matter for Israel.

Like other countries, Israel will naturally gain knowledge through its development of atomic energy for peaceful purposes which can be of significance to the making of nuclear weapons at a later time. But this does not apply to Israel alone.

2. Israel has an Atomic Energy Institute which is established at Rehovot. About 400 people in all are associated with this Institute. I understand that the Institute has laid great stress on the problem of producing natural uranium from phosphate, on heavy water problems and chemical analyses. Recently the Institute has taken up plutonium chemistry, to become familiar with the treatment of this matter.

The Institute is responsible to the Israel Atomic Energy Commission, which has five members. Professor Bergmann is the chairman. In addition there are representatives from universities and technological institutes, and it has been planned to expand the commission with representatives of industry.

The Atomic Energy Commission is under the administration of the Prime Minister of Israel. As the Prime Minister has no separate budget, funds for atomic energy work are appropriated under the Defense Department budget.

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Authority NND 949569~~LIMITED OFFICIAL USE~~Page 2  
Encl. 1  
Desp. 602  
From OSLO

Professor Bergmann is also an adviser to the Department of Defense in defense research matters. This work has no connection with his work in the atomic energy sector, however.

3. Two years ago the Atomic Energy Commission completed its first reactor in Nahal Rubin, a few miles south of Tel Aviv. This is a "swimming pool" reactor with highly concentrated uranium supplied by the U.S. Apart from some special equipment, the reactor was built entirely by the Israelis themselves.

The reactor in Nahal Rubin is now in full operation as experimental reactor both for the Atomic Energy Commission and universities and technological institutes. It also supplies Israel with some radio-active isotopes. The reactor in Nahal Rubin is under U.S. control.

4. As I have mentioned, Israel plans to use atomic energy as a power source. As far as I know, it was the intention to build an atomic power plant with a capacity of 200 MW electricity. According to the plans, the authorities will decide details with regard to selection of type in 1965. The planning to date has been based mainly on the use of natural uranium and heavy water in the reactor. Still there are many details to consider; and final decisions will not be taken until 1965. (Professor Bergmann stressed several times that he personally believed plutonium would be the future material for enriching of natural uranium.)

5. In accordance with its atomic power policy Israel is now building an experimental 24 MW reactor at Demona near the Dead Sea. This reactor will use natural uranium and heavy water. The purpose in building the reactor is to provide an experimental reactor for the future power reactor. It can also be used for a number of experiments. Several French firms are engaged in the building of the reactor, and as far as I know the work is being done in collaboration with the French. Professor Bergman believed the reactor could be put into operation in a couple of years' time, perhaps somewhat sooner. Israel has, as far as I know, made no secret of the fact that they are building the reactor, but on the other hand they have not advertised the fact, as others do. According to my sources, the reasons are: Israel is rather cautious with respect to publishing their plans. They

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Authority NND 949569LIMITED OFFICIAL USEPage 3  
Encl. 1  
Desp. 602  
From OSLO

have also probably thought of the Arabs, not wanting to encourage them to get into a reactor race. The French firms do not care about publicity either, allegedly because they have work in Egypt also.

Professor Bergmann at an early stage informed his colleagues in the U.S. about the reactor, but Israel has not kept America officially informed. This is possibly the reason for the fuss America has made about the reactor. Israel now wants to "de-dramatize" the Demona reactor. They have no objection to our forwarding the information regarding their program to our contacts, including the Americans and English.

6. Israel at present develops natural uranium from phosphate, with the process taking place at the fertilizer factory in Haifa. The method has been developed by the Atomic Energy Commission, which also owns the uranium plant. Experiments are now being made with a more direct extraction of uranium from phosphate.

Israel has devoted much attention to heavy water research. The Commission has built a tower to freshen heavy water, which they consider among the best in the world. This can also be used for production of heavy water on an experimental scale. For practical, industrial purposes, however, the water must have 1 per cent heavy water in order to be freshened.

Israel requires approximately another 5 tons of heavy water for the Demona reactor. There is no hurry, but this need exists.

Israel is interested in taking on assignments for freshening "used" heavy water. They feel they can do high quality work and at competitive prices.

7. Israel is interested in exchange of scientists and other officials with Norway. Professor Bergmann emphasized that the most practical probably would be brief, reciprocal visits at the institutes.

In the first place, Israel is interested in having the office chief of the Institute, Mr. Regberg, pay a visit to Norway

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Authority NND 949569

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Page 4  
Encl. 1  
Desp. 602  
From OSLO

to study our administration system. Bergmann felt the Norwegian pattern would suit Israel best. I replied that I was sure Regberg would be welcome at Kjeller.

8. The hospitality shown by the Atomic Energy Commission and Professor Bergmann was wonderful. I suggested on my departure that it would be very nice if Professor Bergmann and his wife could pay a visit to Norway, for instance in connection with the general assembly in IAEA in Vienna, preferably prior to this general assembly.

/s/ Jens Christian Hauge

Oslo, April 20, 1961.

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